IEPR Committee Workshop on California's Loading Order for Electricity Resources

2005 Integrated Energy Policy Report
Staff Presentation

Renewable Resources:
Status, Issues, Options, Questions

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Renewables Portfolio Standard: Key Issues

- Statewide, 2004 procurement of renewables is 7,000 GWh/yr behind schedule to reach 20 percent renewables statewide by 2010.
- RPS Implementation
  1. Rules needed for energy service providers (ESPs) and community choice aggregators (CCAs)
  2. Update on RPS deliverability rules
  3. Need to procure adequate energy for the RPS, anticipating possible contract delays or cancellations
  4. Need to expedite and simplify the RPS Procurement Process
  5. Market price referent (MPR) and supplemental energy payment (SEP) structure adds complexity, potential delay to RPS
- Transmission and System Operation
  6. Transmission needed for renewables development
  7. Research needed on integrating wind into the electricity system
  8. Further efforts needed to reduce bird deaths from wind turbines

1. Rules for ESP/CCA

- Statute requires CPUC to determine RPS rules for ESP/CCAs, “subject to the same terms and conditions” as investor-owned utilities (IOUs).
- However, there are differences between ESPs/CCAs and IOUs:
  - High variability in short and long-term expectations of sales
  - Credit ranking needed to back long-term contracts
  - Load not large enough to support a medium-sized renewable facility
  - Procurement has not historically been subject to CPUC oversight
- Update: June 29, 2005, CPUC proposed decision:
  - Require full compliance with IOU RPS rules if ESP or CCA is seeking SEPs
  - Allow a procurement agent for ESPs and CCAs

2. Update on RPS Deliverability Rules

- Under previous RPS rules, renewable facilities or suppliers were required to deliver their electricity and associated Renewable Energy Certificates (RECs) to the California Independent System Operator (CA ISO) market hub or substation that the IOU specified.
  - As a result of transmission congestion, this requirement was likely to reduce the number of RPS bids and place upward pressure on bid prices.
  - 2004 RPS negotiations stalled on whether to deliver electricity where the RPS energy enters the grid (i.e., busbar) or utility load aggregation point
- Update: July 21, 2005 CPUC decision
  - May allow delivery anywhere in California and freedom to swap, trade between scheduling coordinators, or remarket power bought by utilities.
  - Requires RPS contracts to specify that if the CA ISO market redesign is adopted, the IOU will take delivery of RPS energy at the busbar.
- Options to consider:
  - Allow renewable facilities or suppliers to offer “shaped” and “firmed” products in RPS request for offers (RFOs).
- Pending legislation (SB 107) would revise RPS deliverability requirements for in-state and out-of-state generators.

3. Need to Sign Contracts that will Produce Adequate Energy for the RPS

- Contracts may fail to produce adequate energy for RPS.
  - A large number of Nevada RPS contracts have experienced construction delays or cancellation.
- Update: CPUC July 21, 2005 decision
  - Directed that delivered energy, rather than contracted energy, should be the metric used for RPS compliance.
  - Directed that flexible compliance should be for interim years only—not the end date
- Options to consider:
  - The state should consider developing additional incentives to ensure utilities reach 20 percent by 2010.

4. RPS Procurement is Slow, Complex (1)

- 2003 and 2004 RPS RFOs were slow to produce signed contracts.
  - SCE's 2003 RFO was more than 14 months late
  - PG&E's 2004 RFO was more than 4 months late
  - SDG&E has not yet announced results from its 2004 RFO, which is more than 3 months behind schedule
- Stakeholders have identified the following causes of delay:
  - Utilities underestimated the time needed for contract negotiations
  - The starting points for contracts, terms, and conditions were inadequate
  - Utility staffing, management were inadequately focused on the RPS negotiations
  - Federal production tax credit stop/start and wind turbine shortages.
- A source of complexity in RPS: CPUC requires each utility to develop a transmission ranking cost report before issuing an RPS RFO.
  - No other state uses a process requiring regulatory approval that must be formally applied in RPS bid evaluation.

4. RPS Procurement is Slow, Complex (2)

- Options to Consider:
  - Reduce the required time to develop contracts. The CPUC should develop a standard-offer approach, with flexible pricing and standard contract terms, which could reduce the uncertainty and delay in the bidding process.
  - Impose regulatory deadlines for utility procurement cycles or expedite RPS-eligible contracts in the CPUC's long-term procurement proceeding.
  - For 2006 and future RPS RFOs, the CPUC should develop a new approach to transmission cost ranking, drawing on CA ISO's expertise.

5. MPR/SEP Structure Adds to Complexity, Potential Delay of RPS Goals

- In the RPS, utilities use the normal cost recovery mechanisms to pay an amount for renewable energy that approximates the cost of non-renewable power (MPR).
  - If renewable energy costs more than the MPR, the additional cost may be eligible to be paid from the Public Goods Charge in the form of SEPs, subject to certain cost constraints.
- Administering the MPR and SEPs requires significant oversight and adds administrative complexity to RPS implementation.
- Options to Consider:
  - The state should consider the pros and cons of eliminating the MPR in the RPS Program unless the MPR and all supporting information are public. Instead, the cost of purchasing or contracting for renewable resources should be included in customer rates, separate from the Public Goods Charge.

6. Transmission Needs for Renewable Energy

- To meet its ambitious renewable energy goals, the state needs new or upgraded transmission to access renewable resources.
  - One key issue for renewable energy transmission is expanding transmission in a resource area in the absence of firm developer commitment to build facilities there.
- The Energy Commission and the CPUC support SCE's proposed "renewable trunk line" concept, which would reduce SCE's regulatory risk of building transmission to meet projected rather than actual renewable energy development.
  - FERC disapproved SCE's petition July 1. Parties have 30 days to file for rehearing.
- Other options include:
  - CPUC, Energy Commission, and CA ISO should coordinate their efforts at the FERC in support of clustered development of renewable facilities.
  - When valuing potential transmission projects, the CA ISO should view the aggregate potential of renewable energy projects near the transmission line, instead of only current, individual projects prompting the need for the upgrade.
  - The state and stakeholders should encourage the FERC to allow the CA ISO to tie permitting and construction approval of transmission projects to RPS generation.
- For further information, see *Upgrading California's Electric Transmission System: Issues and Actions for 2005 and Beyond* - Staff Report, (Workshop: July 28, 2005 at 9:30 am)

7. Integrating Wind Energy into California's Electricity System

- To best fit California's electricity system needs, RPS suppliers should strive to deliver energy on summer afternoons and avoid delivering energy at night when energy demand is low.
- Many California wind sites produce most in the spring and early summer, with energy lowest around noon.
- Many wind sites elsewhere in the West peak in winter months, while others have smaller seasonal changes or patterns like California wind.
- Research needs:
  - Anticipate and adjust to impacts of RPS energy on system operations and dependable peak capacity.
  - Identify extent that shaped products, energy storage, hybridization with other generation or demand response, or unbundled RECs can improve the fit of RPS energy.

8. Reducing Bird Deaths from Wind Turbines

- Beyond removing existing problem turbines, the Energy Commission staff believes further efforts are needed to reduce deaths of avian species protected by domestic and international law.
- Options to Consider:
  - Establish a standing statewide working group to develop regulatory procedures, guidelines for wind projects to comply with state and federal law, including CEQA.
  - Develop private-public partnerships to sponsor environmental studies of known wind resource areas to determine how best to protect birds.
  - Compile an archive on important wildlife migratory corridors to be used in permitting wind facilities.
- For further information: 2005 Electricity Environmental Performance Report - Staff Report

Questions for Stakeholders on RPS (1)

1. The RPS establishes a statewide goal that 20 percent of California's retail sales will be served with renewable energy deliveries by 2010. The *2004 Energy Report Update* suggested 33 percent by 2020. To date, however, the program appears to be falling behind schedule. What actions are needed to correct this trend? Please prioritize the key risks to meeting these targets and recommend corrective actions.
2. What actions should be taken to foster timely and necessary transmission to support renewable development? What milestones and target dates can be identified to measure success?
3. The June 29, 2005 CPUC draft decision lays out a framework for ESP/CCA RPS implementation. What actions are needed to ensure that ESPs/CCAs meet their RPS obligations?
4. What could be done to develop an RPS framework with a faster contracting process and improved transparency that would most assist the IOUs in meeting their RPS goals?

Questions for Stakeholders on RPS (2)

5. The consultant report, "*Preliminary Stakeholder Evaluation of the California Renewables Portfolio Standard*," recommends considering eliminating SEPs and the MPR as a long-term policy issue to ensure clearer price signals to the utilities and renewable generators, and to simplify the program requirements and implementation. Should the Energy Commission support this proposal?
6. If SEPs and the MPR were eliminated, how should the state contain RPS program costs? If SEPs are eliminated, how should the funding collected for SEPs otherwise be used to facilitate accomplishing the state's renewable energy goals?
7. Does the Energy Commission's process to certify renewable facilities adequately meet the RPS program needs? If changes are needed, please identify the problems and recommend remedies.
8. How could other Western states and programs be encouraged to participate in WREGIS?

Questions for Stakeholders on Renewable DG

1. How should a declining rebate be structured to maximize distributed renewable capacity and energy while minimizing funding disruptions?
2. To what extent should installation of energy efficiency measures be required prior to qualifying for a renewable distributed generation incentive? What criteria should be used?
3. How soon should performance-based incentives be more broadly implemented for renewable distributed generation systems?
4. What steps would be needed for the Emerging Renewables Program to charge an application fee? Should it be similar to the fee implemented by the CPUC for the Self Generation Incentive Program?
5. Should the equipment and labor warranty required to qualify for a renewable distributed generation incentive be increased to 10 years?
6. How can incentives for distributed generation photovoltaic systems be changed to bring system costs in California down to levels similar to those in Germany and Japan?
7. Should the various solar incentive programs in California (i.e., municipal utility programs, Self Generation Incentive Program, and Emerging Renewables Program) be consolidated to implement a unified strategy to create a self-sustaining solar PV market? If so, how?

For Further Information…

Implementing California's Loading Order for Electricity Resources, www.energy.ca.gov/2005_energypolicy/documents/

Preliminary Stakeholder Evaluation of the California Renewables Portfolio Standard, www.energy.ca.gov/portfolio/documents/

Upgrading California's Electric Transmission System: Issues and Actions for 2005 and Beyond - Staff Report, (Workshop: July 28, 2005 at 9:30 am) http://www.energy.ca.gov/2005_energypolicy/documents/

2005 Electricity Environmental Performance Report - Staff Report, http://www.energy.ca.gov/2005_energypolicy/documents/

Renewable Energy Program Documents, www.energy.ca.gov/renewables/

CPUC Proceedings on RPS, DG PV Incentives: R.04-04-026, I.00-11-001, R.04-03-017, www.cpuc.ca.gov

Information on California Fairground PV Systems; average system price was less than $5/watt, www.californiasolarcenter.org/pdfs/forum/2003.11.20-SolarForum_Baker-CalFairs.pdf

Background Material

- Details on status of RPS compliance
- Details on status of distributed generation photovoltaics
- Seasonal and diurnal changes in California's largest wind sites

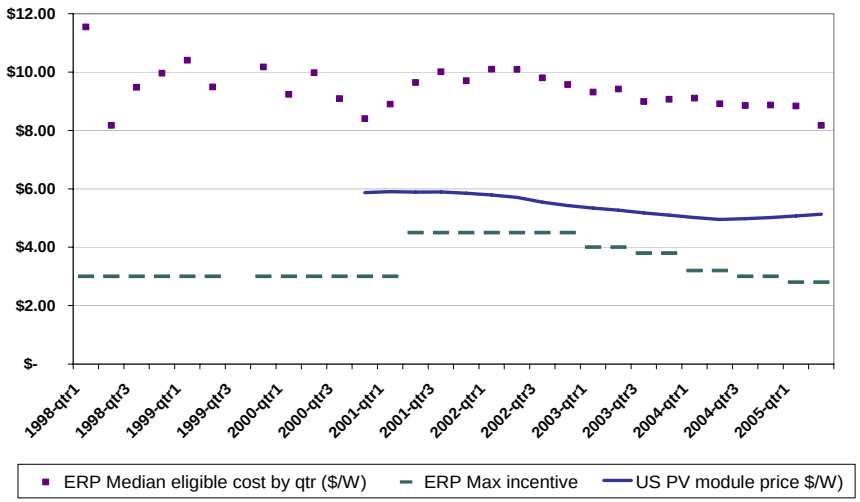
Statewide, RPS was 7,000 GWh behind in 2004

Utilities and Year	Actual or Planned Renewable Energy Procurement (GWh/yr)	Annual Procurement Target set by CPUC	Estimated Cumulative Need (GWh/yr)
PG&E 2003	8,828	8,764	7,326
2004	8,591	9,475	8,550
2005	9,034	10,211	9,633
2010	14,790		15,879
SCE 2003	12,497	12,030	12,451
2004	13,246	12,736	13,637
2005	13,192	13,466	14,560
2010	Redacted		15,934
SDG&E 2003	547	150	501
2004	678	423	893
2005	884	581	1,285
2010	Redacted		3,462
Direct Access and Rest of State			
2003	4,856	n/a	9,540
2004	4,676	n/a	11,512
2005			13,022
2010			20,885
Total State			
2003	26,728	n/a	29,818
2004	27,191	n/a	34,593
2005			38,501
2010			56,160

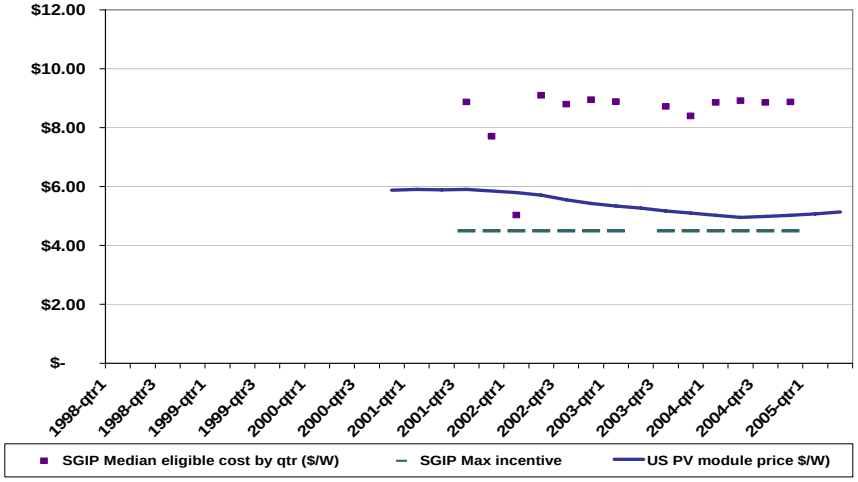
Source: IOU APT compliance reports filed with the CPUC, Gross System Power (less 7% for losses), Appendix A. Cells outlined in bold indicate cumulative procurement that is behind schedule.

Status: Distributed Generation PV in California

ERP Rebate Levels and Median PV System Prices



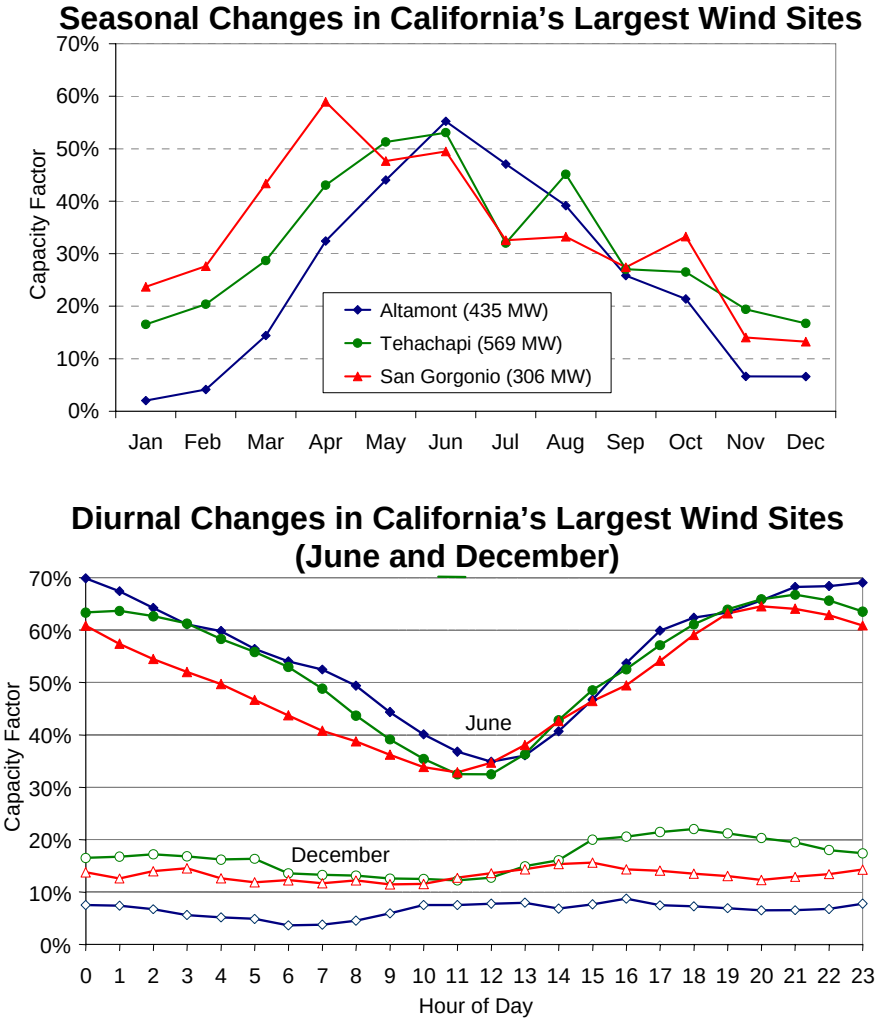
SGIP Rebate Levels and Median PV System Prices



- Declining rebate levels appear to help lower PV system prices in California
- Low-cost systems are feasible today: California Fairground PV system price was less than $5 per Watt (Approved for CPUC incentive in first quarter of 2002)
- 100 MW of grid-connected DG PV in California
- Governor's Solar Roofs Initiative: 3,000 MW of DG PV in California over the next 13 years
- CPUC/Energy Commission Staff Report in support of Governor's Solar Roofs Initiative released for comment in June 2005
- Need to account for module availability while moving towards self-sustaining PV market
- Need for improved availability of DG PV performance data

Source: Emerging Renewables Program Database, Self-Generation Incentive Program, and SDREO

Seasonal and Diurnal Changes in California's Largest Wind Sites



Source: R. Wiser, using CA ISO data for 2002